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By Electronic Mail

December 31, 2016

Mr. Scott Surovchak
Rocky Flats Site Manager
DOE Office of Legacy Management
11025 Dover St., Suite 1000.
Westminster, CO 80021-5573.

Re: Comments, Rocky Flats CERCLA Five-Year Review

Dear Mr. Surovchak,

Thank you very much for the opportunity to provide comments on the Rocky Flats Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA') Five-Year Review ("FYR"). These comments are offered on behalf of the Rocky Mountain Peace and Justice Center and the undersigned members of the Rocky Flats Technical Group.

The Boulder County Commissioners discussed the FYR when they met on May 12, 2016.[1] Boulder County Policy Analyst Megan Davis said at that meeting that the FYR is not restricted to the Department of Energy ("DOE") Central Operable Unit ("COU") Superfund site but also includes the former buffer zone, now the Rocky Flats National Wildlife Refuge ("Refuge"). In September, 2015, the DOE began monetary transfers to US Fish and Wildlife Service pursuant to a seven-year $8.3M Interagency Agreement ("IA") for construction of a Multipurpose Building on the Refuge, reinforcing the ongoing interconnectedness of these sites. The DOE's continuing involvement at the Refuge reinforces that the public should express their concerns about likely exposure to plutonium and other toxins among people present on Refuge land. In an apparent reference to the Refuge, Davis said the FYR should include off-site, or Refuge, testing. The County Commissioners also expressed concern about poor communication and public dismissal by the DOE. Their views are widely held.

Also, newly discovered significant information, the *Cook v. Rockwell* Jury Findings dated February 13, 2006, indicate that based on all of the evidence and testimony presented in that case, plutonium was spread on the class action area. (Exhibit A) This map logically includes

[1] http://bouldercountyco.suiteonemedia.com/web/Player.aspx?id=546&key=-1&mod=-1&mk=-1&nov=0

areas of the COU and the Refuge that also were contaminated because they stand between the source of the contamination in the COU and the off-site properties included as class members. (Exhibit B) Significant changes in circumstances, including burgeoning housing developments adjacent to the site and proposed increased public access to the Refuge, have rendered the COU remedy's physical and institutional controls obsolete and ineffective.

It is imperative that the Environmental Protection Agency ("EPA") take a hard look at the quality and completeness of the data it receives from the DOE during this process. A critical issue to the Community is the obvious conflict of interest posed by a DOE-lead FYR, considering that the actions of the contractors the DOE hired and supervised, Dow, Rockwell and EG&G Rocky Flats, were directly responsible for the need for this massive, expensive and ultimately incomplete cleanup. In 1992, Rockwell pled guilty to 10 federal environmental crimes and paid a fine of $18.5 million to settle its liability for its actions at Rocky Flats.[2]

The Grand Jury empanelled to determine any criminal liability attached to the DOE and contractor actions at Rocky Flats found indictments were warranted against DOE employees but these efforts were refused by the Department of Justice and sealed by the Court:

> "At the end of its service on March 24, 1992, the (Rocky Flats) grand jury submitted to the district court a report of its findings; draft indictments purporting to charge current and former Rockwell and DOE employees with crimes; and documents, designated as "presentments," that alleged wrongdoing without any formal charges. *See In re Grand Jury Proceedings,* 813 F.Supp. 1451, 1456 (D.Colo.1992). The United States Attorney refused to sign the indictments. On September 25, 1992, the supervising court issued an order prohibiting the report from being released to the public."[3]

During the legal conflict over the contamination at Rocky Flats Rockwell actually went so far as to file suit against the DOE claiming that fulfilling its contract with the DOE would expose Rockwell to civil and criminal liability for additional environmental crimes.

> "Operator of government-owned facility at which nuclear weapons components were produced moved for preliminary injunction against Government's demand that it perform on contract for treatment and disposal of radioactive waste to extent that performance might subject it to liability and/or against prosecution or imposition of civil or criminal liability for any actions it took while it was being compelled to perform contract."[4]

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[2] *United States v. Rockwell Int'l Corp.,* 124 F.3d 1194, 1196 (10th Cir. 1997) (citing *United States v. Rockwell Int'l Corp.*, 92-CR-00107-RPM-1, (D. Colo. 1992)).
[3] *In re Special Grand Jury 89-2*, 450 F.3d 1159, 1163 (10th Cir. 2006)
[4] *Rockwell Int'l Corp. v. United States,* 723 F. Supp. 176 (D.D.C. 1989).

The EPA retains final responsibility for the determination of whether the Rocky Flats COU remedy remains protective of human health. The EPA has the statutory authority to reach its own conclusions about the protectiveness of the remedy and to pursue further action to protect public health and the environment.

The following comments focus on issues generally overlooked in the Rocky Flats "cleanup" and in subsequent FYR reports. They should be thoroughly addressed in this Review.

A. Statement of the Issues

The DOE announced the kickoff of the 2017 CERCLA FYR during a presentation to the Rocky Flats Stewardship Council on June 6, 2016. The presentation documents the review process the DOE intends to follow. The evaluation processes rely primarily on verification of Remedial Action Objectives set out in the Corrective Action Decision/Record of Decision ("CAD/ROD") dated September 2006. This CAD/ROD was based on a secondary investigation, the RCRA Facility Investigation – Remedial Investigation/ Corrective Measures Study – Feasibility Study Report for the Rocky Flats Environmental Technology Site, conducted by Kaiser-Hill and dated June 2006.

In July 1996 the parties had entered into the Rocky Flats Cleanup Agreement ("RFCA") detailing exactly what assumptions were made and cleanup actions would be taken.

> "In 1995, the US DOE estimated that Rocky Flats cleanup would take about 65 years and cost over $37 billion (US DOE/LM, 2008). But in July 1996, the US DOE, US EPA, and DPHE replaced previous agreements and consent orders with a Final Rocky Flats Cleanup Agreement, anticipating a final cleanup by 2021 (Colorado DPHE et al., 1996). Appendix 9 of the agreement was the Rocky Flats Vision, signed by senior policy and regulatory authorities, including the governor and lieutenant governor of Colorado, officials of the US EPA and DPHE, and the US DOE officials, including Jessie Roberson, the Rocky Flats manager at the time. The Vision included a commitment to achieve accelerated cleanup and closure of the site in a safe, environmentally protective manner. Goals in support of the Vision were to be "accomplished in the shortest possible time, in the most cost effective manner, and within a streamlined, flexible, and effective regulatory framework."[5]

The original estimates of 65 years and $37 billion became a political liability for the DOE.

> "During 1996, the US DOE viewed Rocky Flats as a site small enough to be capable of achieving cleanup and closure within about a decade, and chose it as the second of two accelerated cleanup projects (the first being the Fernald site in

[5] John Abbotts *Remediation, Land Use, and Risk at Rocky Flats, and a Comparison with Hanford*, Vol. 21(3) Remediation, 145, 151 (July 2011).

> Ohio; see Exhibit 2). With the signing of the new Rocky Flats Cleanup Agreement in 1996, the Department announced that the "agreement will mean that DOE starts moving dirt, not paper." Initial plans were for cleanup and site "closure," a formal process to certify that cleanup is complete, to be accomplished by 2010. But **for political appearances,** the US DOE needed a site to close in ten years, and the Department pushed Rocky Flats closure to 2006, and negotiated with its Rocky Flats Field Office over the measures necessary to achieve that goal (US DOE/RFPO, 2006)."[6] (emphasis added)

When the artificially accelerated 2006 deadline loomed Kaiser-Hill performed a Remedial Investigation - Feasibility Study and Comprehensive Risk Assessment ("RI/FS/CRA") to support the 2006 CAD/ROD. Kaiser-Hill had a conflict of interest in that it stood to reap significant monetary bonuses for delivering the contract on time and under budget. The DOE had a conflict of interest from political pressure to issue a finding that no further "cleanup" was necessary.

The DOE has never adequately explained how the Rocky Flats cleanup could legitimately be reduced from 65 years and $37billion to 10 years and $7billion without substantial compromises in the work that would be completed resulting in compromises to the remedy's protectiveness of human health and the environment.

For example, the RFCA "accelerated actions" did not completely describe the environmental conditions at Rocky Flats, nor did the final response action ensure that residual contamination did not present an unacceptable risk to human health or the environment. Any data collected from gamma spectroscopy or x-ray fluorescence are inappropriate for decision making in the RI/FS/CRA conducted by Kaiser-Hill because they do not meet specific RI/FS quality assurance requirements established by the EPA.

This FYR evaluation process proposed by the DOE is entirely circular logic riddled with conflicts of interest. The history of what actually took place during the cleanup is complex, secretive and poorly documented, particularly related to how specific "actions" were tied to changes in the cleanup standards. Trade-off decisions about standards and promised levels of cleanup were inappropriately and unilaterally made by the DOE, and according to the DOE's own study these decisions were more driven by Congressional pressures on funding and deadlines than based on scientific evidence of protectiveness.[7] The Community's only recourse, to challenge the cleanup decision criteria, has led to the DOE dismissively portraying the Community as confrontational. The DOE also has used the shield of National Security to close the site, essentially controlling every aspect of data collection and analysis. The entire history of this site lacks transparency and oversight by anyone outside of the DOE's influence.

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[6] John Abbotts *Remediation, Land Use, and Risk at Rocky Flats, and a Comparison with Hanford*, Vol.21(3) Remediation, 145, 152 (July 2011).

[7] Theresa Satterfield and Josh Levin, Risk Communication, Fugitive Values, and the Problem of Tradeoffs at Rocky Flats, A Report for the U.S. Department of Energy Low Dose Radiation Research Program, 12/6/02, p. 14-15.

There is significant long-standing distrust and discord between the Community and the DOE as a result of the conduct of the DOE and its contractors during the actual operations of the Rocky Flats Plant, the incomplete cleanup and the stonewalling of post-cleanup concerns. The Community, whose health and safety the DOE has a duty to protect, believe that the cleanup standards were inappropriately compromised. They also believe that sampling data for analysis is selectively collected or presented in summary form to support findings that favor the DOE.

For reasons discussed below, for this FYR to be successful and meet the CERCLA requirements:

1. The DOE must base its findings on a fresh and expanded analysis methodology incorporating an independent authority to perform a scientifically rigorous evaluation of the protectiveness of the COU remedy.
2. The DOE must fully engage with the Community to finally resolve the distrust and discord that are the natural consequences of the DOE's responsibility for the contamination of this site, the incomplete cleanup, and its subsequent stonewalling of the Community's concerns.
3. The EPA must intervene with a finding of non-concurrence if it finds reasonable grounds that the DOE refuses to provide sufficient data and observations to support its protectiveness determination.

B. Discussion

The Rocky Flats Legacy Management Agreement ("RFLMA") is the current Federal Facility Agreement and Consent Order, a civil enforcement action, that details the roles, responsibilities and regulatory framework each agency will have at the Rocky Flats site for implementing the final response action to ensure protection of human health and environment.[8] Because the chosen final response action resulted in "hazardous substances, pollutants or contaminants remaining above levels that allow for unrestricted use and unlimited exposure" a FYR is required.[9] The EPA, which is responsible for overseeing the FYR process, defines its purpose as:

> "The purpose of a five-year review is to evaluate the implementation and performance of a remedy in order to determine if the remedy is or will be protective of human health and the environment. Protectiveness is generally defined in the National Contingency Plan (NCP) by the risk range and the hazard index (HI). Evaluation of the remedy and the determination of protectiveness should be based on and sufficiently supported by data and observations."[10]

[8] Rocky Flats Legacy Management Agreement, February 2007, p. 4.
[9] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 10.
[10] Comprehensive Five-Year Review Guidance, OSWER No. 9355.7-03B-P, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response (5204G), June 2001, p. 1-1.

1. **The DOE must base its findings on a fresh and expanded analysis methodology incorporating an independent authority to perform a scientifically rigorous evaluation of the protectiveness of the COU remedy.**

   a. The contaminants sampling data collected under the current RFLMA is inadequate to assess the protectiveness of the COU remedy.

      Because the Rocky Flats COU is a Federal facility NPL site, the procedures for conducting the five year review should be specified in detail within the RFLMA.[11] The agencies' commitments for the CERCLA 5-Year review are documented in Section 7.3 of the RFLMA,[12] which refers to an earlier Part 11 Periodic Review.[13] These procedures refer to "discussion" of both ground and surface water monitoring data.[14]

      The DOE FYR leadership has stated it intends to use data collected through existing water quality monitoring processes to assess the protectiveness of the remedy.[15] The RFLMA includes no provision for soil sampling or air monitoring.[16] The only identifiable standards included are those for surface water contaminants.[17]

      Examples of the data that WILL NOT be collected through the DOE's proposed approach:

      i. **Burrowing animals.** Groundwater is not the only means of Pu transport. In the spring of 1996 ecologist Shawn Smallwood identified 18 species of burrowing animals on the Rocky Flats site, some of which dig down to as much as 16 feet below the surface, all of them bringing soil and its contents, including Pu, to the surface in a wholly random way. Pu in the environment at the current Rocky Flats Superfund site was partially remediated down to 6 feet and not at all below that level or on what is now the Refuge. The Pu in the environment of both the DOE and Refuge land is being constantly re-circulated. Smallwood estimated that burrowing animals disturb 11 to 12% of surface soil at Rocky Flats in any given year. What is now buried is likely someday to be brought to the surface for wider dispersal by wind, water, fires or other means.[18] Pu particles too tiny to be seen but not too small to

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[11] Comprehensive Five-Year Review Guidance, U.S. EPA, June 2001, p 2-7.
[12] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 10.
[13] Rocky Flats Legacy Management Agreement, February 2007, p. 20,
[14] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 9.
[15] Overview: CERCLA Five-Year Review Process, Rocky Flats Site, Colorado, Central Operable Unit, Rocky Flats Stewardship Council Meeting, June 6, 2016, Slide 17.
[16] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 8-10.
[17] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 10-14.
[18] Shawn Smallwood, "Soil Bioturbation and Wind Affect Fate of Hazardous Materials that Were Released at the Rocky Flats Plant, Colorado" (November 23, 1996), Report submitted for plaintiff's counsel in *Cook v. Rockwell Int'l*

do harm are being made available to be inhaled, the worst way to be exposed to Pu.

ii. **Air sampling:** Though CDPHE has said that air is the most dangerous pathway by which Pu can reach people and be inhaled, with completion of the cleanup all sampling of the air ceased at Rocky Flats. This is not meant to say that air sampling in the past was adequate. Harvey Nichols and W. Gale Biggs, scientists knowledgeable in this field, sharply criticize the inadequacy of earlier air sampling.[19] Competent ongoing air sampling should occur on both the DOE site at Rocky Flats and the Wildlife Refuge.

iii. **Dust sampling.** Carl Johnson, MD, head of the Jefferson County Health Department, and colleagues from USGS realized that the real danger regarding Pu at Rocky Flats was inhaling dust particles with Pu attached. To determine whether the Jefferson County Commissioners should permit construction of a residential development on land just east of the Rocky Flats site, they introduced the innovative method of sampling respirable dust on the surface of soil rather than the whole-soil sampling that was practiced by the Colorado Department of Health. CDH had already approved the residential development. Johnson and his colleagues found plutonium in dust on average 44 times greater than CDH found at the same locations with its whole-soil method. Several of their readings exceeded what CDH found by 100 times or more, one by 285 times.[20] Ongoing sampling of respirable dust should occur on both DOE land and the Refuge.

iv. **PCBs (polychlorinated biphenyls).** Highly toxic PCBs are being air-stripped from goundwater into the environment, mainly in the Original Land Fill. The amount of dispersal has never been measured. There is no capturing of PCBs released into the air. This air-stripping may help DOE reduce PCBs on the Superfund site but only by sending them elsewhere, the Refuge being the closest place. The PCBs must be monitored. If an exposure standard does not exist, it must be created, along with a method for monitoring the PCBs.

v. ***Cook v. Rockwell*: surface soil plutonium contamination.** The *Cook v. Rockwell* Jury Findings indicate that plutonium contamination on the surface of the area included in the class map "will continue to be present ...

Corp., No. 90-CV-00181 (D. Colo.) ; see also the transcript of Smallwood's appearance in court in this case, pp. 3912-4130.

[19] Go to http://media.wix.com/ugd/cff93e_eef7aa6815f245e18c1357249382ed97.pdf for Nichols and to http://www.rockyflatsnuclearguardianship.org/technical-resources-table-of-contents?lightbox=i23t0j for Biggs.

[20] Johnson et al., "Plutonium hazard in respirable dust on the surface soil," *SCIENCE* (August 6, 1976), vol. 193, pp. 488-490. Johnson et al. answered criticisms regarding dust particle size made by John A. Hayden of Rockwell in *SCIENCE* (June 3, 1977), vol. 196, p. 1126.

indefinitely."[21] The jury based this verdict on the totality of the evidence and testimony presented to it. This class map logically includes surface area in COU and the Refuge, because these sites stand between the source of the contamination and the offsite properties included in the class action. DOE's refusal to institute a soil sampling protocol means that no data will be collected or reported about this judicial finding of fact.

b. The water sampling protocol the DOE has in place is limited by flawed assumptions and weather-related failures.

An example is the DOE's assumptions about plutonium migration. What happens with Pu in the Rocky Flats environment in unusually wet conditions, such as the flood of September 11-13, 2013 and heavy rain in February to mid-June, 2015? It is often said that the 2013 flood was a 1,000-year event. This means we should not see another flood like this for 1,000 years. But global warming is changing conditions rapidly. Both severe floods and drought occur more often. Human activity has robbed us of the concept of a 1,000-year flood. We should be aware of Pu migration rather than take risks.

i. The Actinide Migration Evaluation (AME), a study of nearly 10 years, concluded that Pu is "relatively immobile in the soil and after groundwater.[22] What they said became a key principle for the Rocky Flats cleanup.

ii. However, before the AME existed, environmental engineer M. Iggy Litaor, with instruments set up in soil at Rocky Flats during the unusually wet spring of 1995, detected substantial movement of a large quantity of Pu in sub-surface soil. This was a well known, highly publicized fact at the time. Yet DOE, EPA and CDPHE set exposure standards for the "cleanup" based on the AME conclusion.

iii. The AME conclusion that migration of Pu oxide at Rocky Flats would be insignificant is countered by findings at other locations. Research has focused on the propensity of minuscule Pu oxide particles to attach to submicrometer-size colloids consisting of organic or inorganic compounds. Such colloids can transport the Pu considerable distances in groundwater. Annie B. Kersting, a geochemist at DOE's Livermore Lab, reported that Pu released from an underground bomb test at the Nevada Test Site moved at least 1.3 kilometers (0.8 mile) in 30 years, with "colloidal groundwater migration" the likely means of transport.[23] A recent study concludes that colloidal transport accounts for the migration of Pu more than 4 kilometers

[21] *Cook v. Rockwell* Jury Findings, 90-CV-181-JLK, (D. Colo.) February 13, 2006, p. 2-3.
[22] *Actinide Migration Evaluation Pathway Analysis Summary Report*, ER-108 (2002), p. 28.
[23] A. B. Kersting et al., *Migration of plutonium in ground water at the Nevada Test Site*, Nature, vol. 397, no. 7 (January 7, 1999).

(2.5 miles) in about 55 years in the subsurface environment at the Mayak facility in Russia. Other studies show similar long-distance Pu transport in the subsurface environment at DOE's Los Alamos and Savannah River sites.[24] After reviewing the Mayak findings, Kersting said, "we need to get away from this idea that Pu doesn't move, because it does."[25]

iv. Kersting has intensified her research on actinide migration because of its significance at various sites worldwide, including Rocky Flats. She is driven by the recognition that, despite very low concentrations of actinides transported from the original source, their "long half-lives combined with their high toxicity make them of particular concern." Thanks to her team's research on Pu, "the most perplexing element on the periodic table is slowly losing some of its mystery about how it travels underground faster and further than anyone at first expected."[26]

v. To return briefly to the 2013 flood, no samples of Pu or other toxins leaving the site during the flood were taken, because the radiation monitors were so inundated with water that they shut down. So we have no record of the quantity of toxins passing the monitors and leaving the site. Besides monitors that didn't work, sheet flooding occurred in the 2013 event, and no effort has ever been made to monitor Pu or other toxins leaving the site under sheet flooding conditions. DOE manager Scott Surovchak says that when the flow of water is so great as in 2013 the contaminants are diluted and the percentage of contaminant per gallon of water is less. However, in this situation, as Litaor discovered, a large quantity of Pu may move in soil and groundwater and wash off the site onto the Wildlife Refuge or beyond.

vi. Given the 24,110 year half-life of Pu-239 and the danger it poses if minuscule particles are taken into the body, the cleanup at Rocky Flats, based as it is on the work of the AME team, looks like a short-term solution to a long-term problem. The AME researchers, with all their confidence in modeling, made no effort to predict conditions at and near Rocky Flats 500 years from now, much less 10,000 or 100,000 years from now.

vii. The AME team's conclusion of inconsequential Pu migration at Rocky Flats flies in the face of one of their own reports. This report maintains that cleanup of Pu in the soil at Rocky Flats even to citizen-recommended 10

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[24] Alexander P. Novikov et al., *Colloid Transport of Plutonium in the Far-Field of the Mayak Production Association, Russia, SCIENCE*, vol. 314 (October 27, 2006); notes 6 and 8 of this article reference similar long-distance plutonium migration at DOE's Los Alamos and Savannah River sites.

[25] Kersting is quoted in David Biello, *Colloids in Russia: Have Plutonium, Will Travel, Scientific American.Com*, November 10, 2006.

[26] Arnie Heller, *Plutonium Hitches a Ride on Subsurface Particles*, Science & Technology Review, Lawrence Livermore National Laboratory, October/November 2011, pp. 16-18.

picocuries per gram,[27] rather than the 50+ actually adopted, would result in conditions of either a 10-year or a 100-year storm in failure at certain downstream areas to meet the Colorado State standard for Pu in surface water of 0.15 picocuries per liter.[28] Though this contradictory report was part of the AME work, it is not cited in the final AME report.[29]

viii. The above discussion refers to Pu migration in soil and groundwater. It shows that DOE and the regulators are far from reality when they accept the AME conclusion that Pu "is relatively immobile."

ix. The EPA maintains RCRA Info Facility Information that lists the Rocky Flats Site as a Hazardous Waste Generator, Handler ID: CO7890010526. The Resource Conservation and Recovery Act (RCRA) permit for the Rocky Flats Site is limited to Hazardous Waste Generator. The last documented biennial report was in 2005. Yet DOE-LM currently utilizes erosion control materials (wattles, air stripping and matting) to mitigate the migration of contaminants of concern. DOE-LM has not documented the sample analysis of such media, filed any RCRA biennial reports nor provided regulatory authority to treat, store or dispose of the contaminants of concern at the Rocky Flats Site. [30]

c. The DOE is collecting insufficient or incorrect data because the existing sampling/data collection protocol is not supporting permanent resolution of failures of the COU remedy.

The stated purpose of the protocols set out in the RFLMA is to "specify the legacy management requirements that will ensure the response action selected and approved" in the 2006 CAD/ROD "remains protective of human health."[31] "Remedy performance standards and requirements are enforceable numerical values or narrative descriptions of conditions or restrictions, designed to protect existing or potential uses, against which remedy performance can be measured."[32]

The actual purpose of the long-term stewardship of sites where "hazardous substances, pollutants or contaminants remaining above levels that allow for

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[27] Establishing the cleanup level for plutonium in soil at 10 picocuries per gram or less was recommended in a report prepared for the Rocky Mountain Peace and Justice Center by Arjun Makhijani and Sriram Gopal, "Setting Cleanup Standards to Protect Future Generations: The Scientific Basis of the Subsistence Farmer Scenario and Its Application to the Estimation of Radionuclide Soil Actions Levels for Rocky Flats" (Takoma Park, MD: Institute for Energy and Environmental Research, December, 2001). http://www.ieer.org/reports/rocky/toc.html

[28] Win Chromec, Report on Soil Erosion and Surface Water Sediment Transport Modeling for the Actinide Migration Evaluation at the Rocky Flats Environmental Technology Site, 00-RF-01823/DOE-00-93258 (August 2000), p. 51.

[29] *Actinide Migration Evaluation Pathway Analysis Summary Report* (2002), pp iii-iv.

[30] (https://oaspub.epa.gov/enviro/rcrainfoquery_3.facility_information?parm_sys_id=CO7890010526).

[31] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 1.

[32] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 1.

unrestricted use and unlimited exposure" is the protection of human health and the environment.[33] The endless collection, discussion and reporting of sampling data fails in this purpose if it does not provide the information needed to support actual actions taken at the site that permanently fix failures of the remedy.

Examples of ongoing long-term unresolved failures of the COU remedy are:

i. **Problems with the Original Landfill.** Due to extended heavy precipitation mid-February through mid-July, 2015, there was cracking and slumping along the eastern and western edges of the waste footprint. Is this not a persisting problem? Does the DOE understand what is happening? Does it have a remedy? If so, what is it? Can necessary remedies be taken without violating the agreement about depth of digging on the site?

ii. **Exceedances at POCs and POEs.** "Reportable Conditions" occur when results of sampling for a contaminant in surface water or groundwater exceed the agreed upon state standard, which is the legal limit for that particular contaminant on the site. As noted earlier, had proper care been taken to recognize Pu migration and to establish protective radiation exposure standards, we would not now have the persistent problem of reportable conditions at POCs and POEs.

Rocky Flats Reportable Conditions 2013 – 2016

Contaminant	Media	Month(s) when concentrations resulted in reportable conditions	Statistical Base Intervals
Uranium	Surface Water	01/2016, 11/2013 – 10/2014, 12/2013	30-day average, 12-month rolling average, 30-day average
Trichloroethene (TCE)	Groundwater	05/2015 & 10/2015	Semi-annual sampling
Vinyl Chloride	Surface Water	03/2015 - 06/2015, 10/2013 – 02/2014	Quarterly sampling and triggered monthly subsequent sampling
Plutonium	Surface Water	05/2014 - 05/2015	12-month rolling average

This table, prepared by Andrew Moscovich, shows exceedances for five listed contaminants in surface water or groundwater at specific times. Reportable conditions on the chart are averages of samples collected in the periods shown. The table relies on DOE reports.[34]

[33] Rocky Flats Legacy Management Agreement, February 2007, Attachment 2, December 2012, p. 10.
[34] See http://www.lm.doe.gov/Rocky_Flats/ContactRecords.aspx

The DOE's limited water sampling data collection strategy overlooks the possibility that a failure of the remedy will cause contaminants to rise to the surface and also possibly become airborne rather than flow out through the surface or groundwater. The Community's repeated requests for soil sampling and air monitoring has been unilaterally denied to date.

For these reasons, the DOE must base its FYR findings on a fresh and expanded analysis methodology incorporating an independent authority to perform a scientifically rigorous evaluation of the protectiveness of the COU remedy.

2. **The DOE must fully engage with the Community to finally resolve the distrust and discord that are the natural consequences of the DOE's responsibility for the contamination of this site, the incomplete cleanup and its subsequent stonewalling of the Community's concerns.**

Community involvement is such a key component of the FYR process that EPA provides significant direction to the Federal agencies about requirements that must be fulfilled.[35] "At high profile sites or those with significant public interest, (the Federal agency) should carefully consider methods for informing the community about the review."[36]

The EPA has issued additional guidance about partnership in its efforts to streamline the oversight of Federal facility sites.[37] The EPA's direction about communication with Communities is refreshingly frank:

> "The history of federal facilities cleanup has been one marked with considerable distrust between the communities, the regulators, and the federal facility. One outcome of this distrust was a need for extensive regulator and community oversight of cleanup activities. At some facilities, the atmosphere of distrust has changed or is being changed. At other facilities, much needs to be done...."[38]

A complete depiction of the distrust and discord between the Community and the DOE at Rocky Flats would fill volumes and solve little. Suffice it to say that years of misdirection, stonewalling and dismissal of public concerns by the DOE has

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[35] Comprehensive Five-Year Review Guidance, OSWER No. 9355.7-03B-P, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response (5204G), June 2001, p. A1-8.
[36] Comprehensive Five-Year Review Guidance, OSWER No. 9355.7-03B-P, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response (5204G), June 2001, p. A5.
[37] Jim Woolford and Craig Hooks, Memorandum: Federal Facilities Steamlined Oversight Directive, OSWER Directive No. 9230.0-75, November 29, 1996, p. 7.
[38] Jim Woolford and Craig Hooks, Memorandum: Federal Facilities Steamlined Oversight Directive, OSWER Directive No. 9230.0-75, November 29, 1996, p. 7.

compromised its credibility and destroyed any trust that the DOE is serving and protecting much beyond but its own interests.

The clearest admission that the DOE was motivated to "manage" public input came ironically from a study commissioned by the DOE:

> "... we were explicitly informed by agency personnel that the DOE and Congress had produced an agreement that guaranteed yearly appropriation of funds for the Rocky Flats cleanup as long as three conditions were met: 1) the cleanup be completed by 2006; 2) the cost and scope of the cleanup be contained (i.e., remain as negotiated); 3) **conflict in the community be curtailed (given the history of public protest at Rocky Flats).** This agreement, made in trust, was (and continues to be) validated through ongoing annual appropriations to Rocky Flats. Rocky Flats was in an advantageous position in that very few of the other sites in the DOE complex had been guaranteed (albeit conditionally so) annual appropriations. But as those funds were "conditional", **the contractor and the agencies were placed in the position of having to 'minimize conflict' while meeting bottom-line budget limitations regardless of any certainty that cleanup could actually be achieved with the available resources and within the agreed upon time line.**"[39] (emphasis added)

An example of the distrust in the Community for trade-off decisions and actions taken by the DOE is how the cleanup standards were literally backed into when the DOE ran out of time and funding for the cleanup.

> **Radiation exposure standards.** What is the effect of the radiation exposure standards set for Rocky Flats as part of cleanup? When DOE, EPA and CDPHE personnel call the site "safe," they mean that the radiation exposure standards they established are, with minor exceptions, not violated. However, the National Academy of Sciences affirmed in their 2006 BEIR study that there is no such thing as a safe radiation exposure; any exposure is potentially harmful.[40]

i. In the words of Ulrich Beck, "Whoever *limits* pollution has also *concurred* in it." Exposure standards "may indeed prevent the very worst from happening, but they are at the same time 'blank checks' to poison nature and mankind *a bit*."[41]

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[39] Theresa Satterfield and Josh Levin, Risk Communication, Fugitive Values, and the Problem of Tradeoffs at Rocky Flats, A Report for the U.S. Department of Energy Low Dose Radiation Research Program, 12/6/02, p. 26.

[40] *Health Risks from Exposure to Low Levels of Ionizing Radiation, BEIR VII* (Washington, DC: National Academies Press, 2006), p. 246.

[41] Ulrich Beck, *Risk Society*, translated by Mark Ritter (London: Sage Publications, 1992), p. 64.

ii. As for Pu, the most common contaminant at Rocky Flats, Columbia University scientists found that a single Pu particle taken into the body can be harmful, possibly fatal.[42] Once inside the body, the Pu lodges in a specific location, where it will remain for the rest of one's life, constantly bombarding nearby cells with radioactive alpha particles. The effect is likely to be cancer, a compromised immune system, or genetic harm to offspring. Given that exposure to a single particle of Pu taken into the body can be harmful, protecting what CERCLA calls the maximally exposed individual (the Wildlife Refuge worker) is senseless. Anyone who inhales plutonium may be harmed; the most vulnerable is a child.

iii. The developing field of epigenetics points to greater environmental dangers to the genome than was previously imagined, so the Precautionary Principle must be employed here. Instead of caution, the government agencies responsible for Rocky Flats call the site "safe." This is a misuse of language and gambles with the health of people now and in future generations.

iv. The biggest problem with the Rocky Flats site is not the occasional failure to meet existing radiation exposure standards at a Point of Compliance or a Point of Evaluation. The biggest problem is the existing radiation exposure standards themselves. They allow exposure that will harm some. This is true on the DOE Superfund site but also on the Rocky Flats Wildlife Refuge and in exposed areas off the site.

v. There is no reason to relax about Pu in off-site areas. Above it is shown that radiation exposure standards don't prevent harm but actually allow it. Consider briefly what the jury in the recently settled Cook v. Dow and Rockwell case said as they reached a verdict. The jury found that Dow and Rockwell had released plutonium onto the Class Properties and that "it appears that this Pu will continue to be present on the Class Properties indefinitely."[43] The Pu on property in the roughly 30 square-mile area covered by this case will pose a danger to people in that area indefinitely. The health of some is likely to be harmed. The jury decision is important, because it shows that a group of people not familiar with details regarding Rocky Flats became convinced of the guilt of Dow and Rockwell when presented with evidence that the companies released contamination from Rocky Flats into the environment.

vi. When Rocky Flats was producing parts for nuclear weapons, it could be argued that one price of national security was to set radiation exposure

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[42] Tom K. Hei et al., *Mutagenic effects of a single and exact number of particles in mammalian cells*, Proceedings of the National Academy of Sciences, vol. 94 (April 1997), pp. 3765-3770.

[43] *Cook v. Rockwell* Jury Findings, 90-CV-181-JLK, (D. Colo.) February 13, 2006, p. 2-3.

standards that allow some exposure to plant workers as well as affected public. Now that the plant is closed, there is no excuse for exposing anyone on or off the site. The Rocky Flats Future Site Use Working Group, after a year's study, in a consensus decision called for cleaning the site to the average background level for Pu from global fallout (0.04 pCi/g). They recognized that technologically this could not be done now, but they wanted it done as quickly as possible. The technology to accomplish this could be developed at Rocky Flats, then made available to Pu-contaminated sites elsewhere.[44] This proposal quickly became the most widely publicly supported recommendation for the cleanup, but it was ignored by DOE, even though they had requested it. In October 1996 DOE and the regulators officially adopted a Pu cleanup standard of 651 pCi/g, 16,275 times the 0.04 pCi/g the Future Site Use Group had recommended. Al Alm, then head of DOE's cleanup operations nationally, was at the meeting where this standard was revealed, and he heard the public's overwhelming rejection and anger at having been ignored. He ordered Rocky Flats officials to begin anew. This led, after a period of intense conflict, to the stratified three-level cleanup standard finally adopted in 2003. Only near the end of time-consuming discussions of the cleanup did the public finally learn that in a secret deal with Congress DOE had agreed to a fiscal cap and a time limit for the Rocky Flats cleanup.[45]

The FYR Leadership team has indicated that the only public input to this process after this comment period will be through the Rocky Flats Stewardship Council regular meetings.[46] This process is a golden opportunity to re-establish a partnership between the Community and the DOE. For any chance of a successful FYR process, the DOE must fully engage with the Community to finally resolve the distrust and discord that are the natural consequences of the DOE's responsibility for the contamination of this site, the incomplete cleanup, and its subsequent stonewalling of the Community's concerns.

3. **The EPA must intervene with a finding of non-concurrence if it finds reasonable grounds that the DOE refuses to provide sufficient data and observations to support its protectiveness determination.**

Although CERCLA and Executive Order 13016 delegate authority to Federal Agencies, in this case the DOE, to lead the cleanup and long-term stewardship of Federal facility

[44] *Rocky Flats Future Site Use Working Group Recommendations* (July 1995).
[45] Details are available in LeRoy Moore, *Rocky Flats: The Bait and Switch Cleanup*, Bulletin of the Atomic Scientists, January/February 2005, pp. 50-57; on line at http://media.wix.com/ugd/cff93e_7711d2b2a9d84f28ab1986706f1cda75.pdf
[46] Overview: CERCLA Five-Year Review Process, Rocky Flats Site, Colorado, Central Operable Unit, Rocky Flats Stewardship Council Meeting, June 6, 2016, Slide 17.

NPL sites, the EPA retains a key role as a check and balance to this inherent conflict of interest.[47]

> "EPA has an obligation when signing or approving CERCLA decision documents to ensure that the remedies, including institutional controls (ICs) which are components of remedies, are protective and will remain so in the future. This responsibility is consistent with this Agency's obligation under CERCLA remedy-selection criteria established in the National Contingency Plan at 40 C.F.R. §300.430(e)(9)(iii), to assess the long-term reliability of ongoing remedial measures as part of evaluating a remedy's effectiveness in protecting public health and the environment."[48]

The EPA itself is imposing stricter guidelines on its concurrence process for Federal facility NPL sites.

> "The long-term effectiveness of remedies, including ICs, is a high priority for EPA's federal facility program. Consequently, we are requesting Regions to take prompt action to ensure that, **for federal facilities, EPA Regions only approve decision documents which adequately document the means of ensuring the short- and long-term effectiveness of ICs.** Regions are directed to scrutinize all proposed plans, draft and final RODs and post-ROD documents which address ICs, to ensure that they adequately document the objectives of the ICs, and clearly identify who has responsibility for implementation, monitoring, reporting and enforcement of the ICs. Your review should ensure that EPA is provided a sufficient oversight role in the implementation and maintenance of the selected remedy and that the documents are consistent with CERCLA, the NCP, and EPA policy and guidance or that they provide an adequate justification to explain the variance...
>
> If the regional review finds an insufficient oversight role for EPA in the post-remedy implementation and maintenance of the IC or you make a determination that the remedy decision document is inconsistent with CERCLA, the National Contingency Plan or EPA policy and guidance, particularly with respect to the adequacy of the IC information, **the Region should not approve the document under review.**"[49] (emphasis added)

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[47] The RMFLA omits this Executive Order, along with EO 13423 and 13514) [https://www.epa.gov/enforcement/select-executive-orders-environmental-compliance-requirements-federal-facilities].

[48] Memorandum: EPA Concurrent/Approval of Federal Facility Proposed Plans and Records of Decision and other Documents, James Woolford, Director, 17 August 2001.

[49] Memorandum: EPA Concurrent/Approval of Federal Facility Proposed Plans and Records of Decision and other Documents, James Woolford, Director, 17 August 2001.

The EPA has the jurisdiction to issue an independent finding disagreeing with the DOE's determination as to the protectiveness of the COU remedy. "If the Region cannot reach an informal resolution of the issue, the Region should be prepared to follow the dispute resolution process outlined in the Federal Facility Agreement. "[50]

If the DOE is unable or unwilling to cure the shortcomings in its approach to this FYR then the EPA must intervene with a finding of non-concurrence if finds reasonable grounds that the DOE refuses to provide sufficient data and observations to support its protectiveness determination.

C. Conclusion

The June 16, 2016, DOE presentation to the Rocky Flats Stewardship Council posed three material questions.[51] The undersigned would respectfully answer them as follows:

A. **Is the remedy functioning as intended?** This must be answered NO because of ongoing exceedances at POCs and POEs and the slumping of the Original Landfill. In addition is the sampling failure, especially in the flood of September 2013 when monitors did not work at the peak of the storm, so that there is no record of what actually happened at monitoring points. Of course there's also no record of what was carried off the DOE site in sheet flooding. And there was at the time of the flood and never has been sampling of air and of surface soil dust. Nor has there been any recognition of the reality of plutonium migration.

B. **Are the exposure assumptions, toxicity data, cleanup levels, and Remedial Action Objectives (RAOs) still valid?** This must be answered NO for several reasons. A) Pu migration in groundwater is well-documented as is its movement due to the activity of burrowing animals. B) The radiation exposure standards set for the cleanup are not adequately protective on either the DOE site or the Wildlife Refuge. Though the public recommended standards for a more rigorous cleanup, they were ignored. Scientific studies referenced above support the public, not the action taken by DOE and the regulators. C) Neither air sampling or dust sampling occur on DOE or Refuge land. Without this no one really knows what is happening in the environment. Both must occur on an ongoing basis. D) Only recently did DOE decide to air strip PCBs, but there is no monitoring. If this is done it must be monitored to meet an exposure standard that is protective.

C. **Has any other information come to light that could call into question the protectiveness of the remedy?** Yes, as spelled out above. Everything referred to has

[50] Memorandum: EPA Concurrent/Approval of Federal Facility Proposed Plans and Records of Decision and other Documents, James Woolford, Director, 17 August 2001.
[51] Overview: CERCLA Five-Year Review Process, Rocky Flats Site, Colorado, Central Operable Unit, Rocky Flats Stewardship Council Meeting, June 6, 2016, Slides 11-13.

long been available, but it has been ignored. The only thing new is the air-stripping of PCBs. According to a report published in 2000, The National Research Council "finds that much regarding DOE's intended reliance on long-term stewardship is at this point problematic."[52] This is a polite way of saying that long-term stewardship doesn't work at all DOE sites. It won't work at Rocky Flats without starting over, setting exposure standards that are actually protective and then cleaning the site to the maximum extent possible with existing technology.

Although there is no statutory requirement for the government agencies doing the CERCLA FYR to prepare the text of the review without the public having the opportunity to see it and comment on it such a process would benefit all parties. The DOE's Review and the EPA's Review concurrence letter must be completed and made available to the public well in advance of the final date for completion of the Review. The public should have at least one month in which to comment on the Review, and the DOE and the EPA must provide their responses to the public by the date for completion of the Review. The rules for commenting and receiving responses must be similar to those used in the CERCLA process.

Sincerely,

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[52] *Long-term Institutional Management of U.S. Department of Energy Legacy Waste Sites* (Washington, DC: National Academy of Sciences, National Research Council, August 2000).

//s// Randall M. Weiner

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on behalf of:

The Rocky Mountain Peace and Justice Center
The Rocky Flats Technical Group, comprised of:

- LeRoy Moore, PhD
- Jon Lipsky, Former FBI Agent
- Harvey Nichols, PhD
- W. Gale Biggs, PhD
- Judith Mohling
- Christopher Hormel
- Lynn Segel

cc: Vera Moritz, Environmental Protection Agency, Remedial Project Manager, Rocky Flats Site, Carl Spreng, Colorado Department of Public Health and Environment, State Project Manager, Rocky Flats Site

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO
Judge John L. Kane

Civil Action No. **90-cv-181-JLK**

MERILYN COOK, et al.,

Plaintiffs,

v.

ROCKWELL INTERNATIONAL CORPORATION AND THE DOW CHEMICAL COMPANY,

Defendants.

JURY VERDICT FORM

We the jury in the above entitled case, being first duly empaneled and sworn and having heard the evidence at trial and being instructed in the applicable law, present our Answers to the Questions submitted by the Court, to which we have agreed as provided in Instruction No. 4.5.

¶ A. **Trespass Claim Against Defendant Dow Chemical Company**

With regard to Plaintiffs' claim against Defendant Dow Chemical Company ("Dow") for trespass (*Instruction Nos. 3.2 through 3.5)*, we find as follows:

1. Do you find that plutonium from Rocky Flats is present on the Class Properties *(see Instruction No. 3.3)*?

ANSWER: X Yes _____ No.

Exhibit A

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ B.

2. Do you find that Dow intentionally undertook an activity or activities that in the usual course of events caused plutonium from Rocky Flats to be present on the Class Properties *(see Instruction No. 3.18)*?

ANSWER: X Yes _____ No.

IF YOUR ANSWER TO QUESTION NO. 2 IS "YES," THEN GO TO QUESTION NO. 3. IF YOUR ANSWER TO QUESTION NO. 2 IS "NO," THEN SKIP TO ¶ B.

3. Do you find it appears that this plutonium will continue to be present on the Class Properties indefinitely *(see Instruction No. 3.4)*?

ANSWER: X Yes _____ No

IF YOU ANSWERED "YES" TO QUESTION NOS. 1- 3 IN THIS PARAGRAPH, THEN YOU HAVE FOUND FOR PLAINTIFFS AND AGAINST DOW ON THIS TRESPASS CLAIM.

PLEASE GO TO ¶ B.

¶ B. <u>Trespass Claim Against Rockwell International Corporation</u>

With regard to Plaintiffs' claim against Defendant Rockwell International Corporation ("Rockwell") for trespass (*Instruction Nos. 3.2 through 3.5)*, we find as follows:

1. Do you find that plutonium from Rocky Flats is present on the Class Properties *(see Instruction No. 3.3)*?

ANSWER: X Yes _____ No.

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ C.

2. Do you find that Rockwell intentionally undertook an activity or activities that in the usual course of events caused plutonium from Rocky Flats to be present on the Class Properties *(see Instruction No. 3.18)*?

ANSWER: X Yes _____ No.

IF YOUR ANSWER TO QUESTION NO. 2 IS "YES," THEN GO TO QUESTION NO. 3. IF YOUR ANSWER TO QUESTION NO. 2 IS "NO," THEN SKIP TO ¶ C.

3. Do you find it appears that this plutonium will continue to be present on the Class Properties indefinitely *(see Instruction No. 3.4)*?

ANSWER: X Yes _____ No

IF YOU ANSWERED "YES" TO QUESTION NOS. 1- 3 IN THIS PARAGRAPH, THEN YOU HAVE FOUND FOR PLAINTIFFS AND AGAINST ROCKWELL ON THIS TRESPASS CLAIM.

PLEASE GO TO ¶ C.

¶ C. Nuisance Claim Against Dow Chemical Company

With regard to Plaintiffs' claim against Dow for nuisance (*Instruction Nos. 3.6 through 3.17)*, we find as follows:

1. Do you find Dow interfered with Class members' use and enjoyment of their properties in the Class Area in one or both of these ways: (A) by causing Class members to be exposed to plutonium and placing them at some increased risk of health problems as a result of this exposure *(see Instruction Nos. 3.7, 3.18)*; and/or (B) by causing objective conditions that pose a demonstrable risk of future harm to the Class Area *(see Instruction Nos. 3.7, 3.18)*?

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ D.

2. Do you find this interference with Class members' use and enjoyment of their properties was both "unreasonable" and "substantial" *(see Instruction Nos. 3.8 - 3.12)*?

ANSWER: X Yes _____ No.

IF YOUR ANSWER TO QUESTION NO. 2 IS "YES," THEN GO TO QUESTION NO. 3. IF YOUR ANSWER TO QUESTION NO. 2 IS "NO," THEN SKIP TO ¶ D.

3. Do you find the activity or activities causing the unreasonable and substantial interference by Dow were either "intentional" or "negligent" *(see Instruction Nos. 3.13 - 3.16)*?

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 3 IS "YES," THEN GO TO QUESTION NO. 4. IF YOUR ANSWER TO QUESTION NO. 3 IS "NO," THEN SKIP TO ¶ D.

4. Do you find it appears the unreasonable and substantial interference with the use and enjoyment of property caused by Dow's intentional or negligent conduct will continue indefinitely *(see Instruction No. 3.17)*?

ANSWER: X Yes _____ No

IF YOU ANSWERED "YES" TO QUESTION NOS. 1- 4 IN THIS PARAGRAPH, THEN YOU HAVE FOUND FOR PLAINTIFFS AND AGAINST DOW ON THIS NUISANCE CLAIM.

PLEASE GO TO ¶ D.

¶ D. <u>Nuisance Claim Against Rockwell International Corporation</u>

With regard to Plaintiffs' claim against Rockwell for nuisance (*Instruction Nos. 3.6 through 3.17)*, we find as follows:

1. Do you find Rockwell interfered with Class members' use and enjoyment of their properties in the Class Area in one or both of these ways: (A) by causing Class members to be exposed to plutonium and placing them at some increased risk of health problems as a result of this exposure *(see Instruction Nos. 3.7, 3.18)*; and/or (B) by

causing objective conditions that pose a demonstrable risk of future harm to the Class Area *(see Instruction Nos. 3.7, 3.18)*?

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ E.

2. Do you find this interference with Class members' use and enjoyment of their properties was both "unreasonable" and "substantial" *(see Instruction Nos. 3.8 - 3.12)*?

ANSWER: X Yes _____ No.

IF YOUR ANSWER TO QUESTION NO. 2 IS "YES," THEN GO TO QUESTION NO. 3. IF YOUR ANSWER TO QUESTION NO. 2 IS "NO," THEN SKIP TO ¶ E.

3. Do you find the activity or activities causing the unreasonable and substantial interference by Rockwell were either "intentional" or "negligent" *(see Instruction Nos. 3.13 - 3.16)*?

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 3 IS "YES," THEN GO TO QUESTION NO. 4. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ E.

4. Do you find it appears the unreasonable and substantial interference with the use and enjoyment of property caused by Rockwell's intentional or negligent conduct will continue indefinitely *(see Instruction No. 3.17)*?

ANSWER: X Yes _____ No

IF YOU ANSWERED "YES" TO QUESTION NOS. 1- 4 IN THIS PARAGRAPH, THEN YOU HAVE FOUND FOR PLAINTIFFS AND AGAINST ROCKWELL ON THIS NUISANCE CLAIM.

PLEASE GO TO ¶ E.

¶ E Actual Damages for Trespass

IF YOU DID NOT ANSWER "YES," TO ALL OF THE QUESTIONS IN ¶ A (TRESPASS BY DOW) OR ¶ B (TRESPASS BY ROCKWELL), PLEASE SKIP TO ¶ F (ACTUAL DAMAGES FOR NUISANCE).

IF YOU ANSWERED "YES," TO ALL OF THE QUESTIONS IN ¶ A (TRESPASS BY DOW), BUT DID NOT ANSWER "YES," TO ALL OF THE QUESTIONS IN ¶ B (TRESPASS BY ROCKWELL), GO TO QUESTION NO. 1 IN THIS PARAGRAPH.

IF YOU ANSWERED "YES," TO ALL OF THE QUESTIONS IN ¶ B (TRESPASS BY ROCKWELL), BUT DID NOT ANSWER "YES," TO ALL OF THE QUESTIONS IN ¶ A (TRESPASS BY DOW), SKIP TO QUESTION NO. 6 IN THIS PARAGRAPH.

IF YOU ANSWERED "YES," TO ALL OF THE QUESTIONS IN ¶ A (TRESPASS BY DOW) AND IN ¶ B (TRESPASS BY ROCKWELL), SKIP TO QUESTION NO. 11 IN THIS PARAGRAPH.

With regard to actual damages resulting from trespass, (*Instruction Nos. 3.20 through 3.25)*, we find as follows:

Trespass Verdict Against Dow Only

1. Do you find the injurious situation resulting from the trespass by Dow became "complete" and "comparatively enduring" some time between January 1, 1988 and December 31, 1995 *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

2. As of the time you find the injurious situation became "complete" and "comparatively enduring," do you find the actual value of the Class Properties was less than the value these Properties would have had but for the trespass committed by Dow *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No, and so we award nominal damages of $1 per class member on this claim.

IF YOUR ANSWER TO QUESTION NO. 2 IS "YES," THEN GO TO QUESTION NO. 3. IF YOUR ANSWER TO QUESTION NO. 2 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

3. As of the time you find the injurious situation became "complete" and "comparatively enduring," what is the amount of the difference between the actual value of Class Properties and what their value would have been but for the trespass by Dow? For each of the three types of property below, please state your answer as follows *(see Instruction No. 3.23)*:

(a) in the first column, state the average percentage by which Class Properties were diminished or depressed in value, relative to what their value would have been, without the trespass; and

(b) in the second column, the corresponding total dollar amount by which Class Properties, as a whole, were diminished or depressed in value, relative to what their value would have been, without the trespass.

For purposes of this answer, you should not consider Dow's affirmative defense of setoff or any "prior market discount" at which Class Members may have purchased their properties.

	Percentage Undervaluation	Aggregate Damages (Entire Class)
RESIDENTIAL	_____%	$_____
VACANT LAND	_____%	$_____
COMMERCIAL	_____%	$_____

TOTAL: $_____

PLEASE GO TO QUESTION NO. 4.

With regard to Dow's affirmative defense of setoff *(see Instruction No. 3.25)*, we find as follows:

4. Do you find that Dow proved that its trespass caused a diminution in the value of Class Properties in one or more specific time periods before June 7, 1989?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 4 IS "YES," THEN GO TO QUESTION NO. 5. IF YOUR ANSWER TO QUESTION NO. 4 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

5. For each time period in which you found there was a pre-existing diminution in Class Property values, state when the period began, when it ended and the average percentage by which Class Property values were diminished by Dow's trespass during this period. (Add more lines if necessary.)

Beginning of Period	End of Period	Percentage Diminution in Value
_____	_____	_____
_____	_____	_____
_____	_____	_____

PLEASE GO TO ¶ F (actual damages for nuisance).

Trespass Verdict Against Rockwell Only

6. Do you find the injurious situation resulting from the trespass by Rockwell became "complete" and "comparatively enduring" some time between January 1, 1988 and December 31, 1995 *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 6 IS "YES," THEN GO TO QUESTION NO. 7. IF YOUR ANSWER TO QUESTION NO. 6 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

7. As of the time you find the injurious situation became "complete" and "comparatively enduring," do you find the actual value of the Class Properties was less than the value these Properties would have had but for the trespass committed by Rockwell *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No, and so we award nominal damages of $1 per class member on this claim.

IF YOUR ANSWER TO QUESTION NO. 7 IS "YES," THEN GO TO QUESTION NO. 8. IF YOUR ANSWER TO QUESTION NO. 7 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

8. As of the time you find the injurious situation became "complete" and "comparatively enduring," what is the amount of the difference between the actual value of Class Properties and what their value would have been but for the trespass by Rockwell? For each of the three types of property below, please state your answer as follows *(see Instruction No. 3.23)*:

(a) in the first column, state the average percentage by which Class Properties were diminished or depressed in value, relative to what their value would have been, without the trespass; and

(b) in the second column, the corresponding total dollar amount by which Class Properties, as a whole, were diminished or depressed in value, relative to what their value would have been, without the trespass.

For purposes of this answer, you should not consider Rockwell's affirmative defense of setoff or any "prior market discount" at which Class Members may have purchased their properties.

	Percentage Undervaluation	Aggregate Damages (Entire Class)
RESIDENTIAL	_____%	$_____
VACANT LAND	_____%	$_____
COMMERCIAL	_____%	$_____

TOTAL: $_____

PLEASE GO TO QUESTION NO. 9.

With regard to Rockwell's affirmative defense of setoff *(see Instruction No. 3.25)*, we find as follows:

9. Do you find that Rockwell proved that its trespass caused a diminution in the value of Class Properties in one or more specific time periods before June 7, 1989?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 9 IS "YES," THEN GO TO QUESTION NO. 10. IF YOUR ANSWER TO QUESTION NO. 4 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

10. For each time period in which you found there was a pre-existing diminution in Class Property values, state when the period began, when it ended and the average percentage by which Class Property values were diminished by Rockwell's trespass during this period. (Add more lines if necessary.)

Beginning of Period	End of Period	Percentage Diminution in Value
_____	_____	_____
_____	_____	_____
_____	_____	_____

PLEASE GO TO ¶ F (actual damages for nuisance).

Trespass Verdicts Against Both Dow and Rockwell

11. Do you find the injurious situation resulting from the trespass by Dow and Rockwell became "complete" and "comparatively enduring" some time between January 1, 1988 and December 31, 1995 *(see Instruction No. 3.22)*?

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 11 IS "YES," THEN GO TO QUESTION NO. 12. IF YOUR ANSWER TO QUESTION NO. 11 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

12. As of the time you find the injurious situation became "complete" and "comparatively enduring," do you find the actual value of the Class Properties was less than the value these Properties would have had but for the trespass committed by Dow and Rockwell *(see Instruction No. 3.22)*?

ANSWER: X Yes _____ No, and so we award nominal damages of $1 per class member on this claim.

IF YOUR ANSWER TO QUESTION NO. 12 IS "YES," THEN GO TO QUESTION NO. 13. IF YOUR ANSWER TO QUESTION NO. 12 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

13. As of the time you find the injurious situation became "complete" and "comparatively enduring," what is the amount of the difference between the actual value of Class Properties and what their value would have been but for the trespass by Dow and Rockwell? For each of the three types of property below, please state your answer as follows *(see Instruction No. 3.23)*:

(a) in the first column, state the average percentage by which Class Properties were diminished or depressed in value, relative to what their value would have been, without the trespass; and

(b) in the second column, the corresponding total dollar amount by which Class Properties, as a whole, were diminished or depressed in value, relative to what their value would have been, without the trespass.

For purposes of this answer, you should not consider Defendants' affirmative defense of setoff or any "prior market discount" at which Class Members may have purchased their properties.

All numbers adjusted to 2005 CPI

	Percentage Undervaluation	Aggregate Damages (Entire Class)
RESIDENTIAL	7 %	$ 144,199,088.00
VACANT LAND	30 %	$ 27,000,000.00
COMMERCIAL	53.03 %	$ 5,651,252.00
		TOTAL: $ 176,850,340.00

PLEASE GO TO QUESTION NO. 14.

14. Taking as 100 percent the combined trespass that caused the damages you have found, what percentage, if any, was caused by the trespass by Dow and the trespass by Rockwell *(see Instruction No. 3.19A)*:

ANSWER: Percentage, if any, charged to Dow: 90 %

Percentage, if any, charged to Rockwell 10 %

MUST TOTAL: 100%

PLEASE GO TO QUESTION NO. 15

With regard to Dow and Rockwell's affirmative defense of setoff *(see Instruction No. 3.25)*, we find as follows:

15. Do you find that Dow and Rockwell proved that their trespass caused a diminution in the value of Class Properties in one or more specific time periods before June 7, 1989?

ANSWER: _____ Yes X No

IF YOUR ANSWER TO QUESTION NO. 15 IS "YES," THEN GO TO QUESTION NO. 16. IF YOUR ANSWER TO QUESTION NO. 15 IS "NO," THEN SKIP TO ¶ F (actual damages for nuisance).

16. For each time period in which you found there was a pre-existing diminution in Class Property values, state when the period began, when it ended and the average percentage by which Class Property values were diminished by Dow and Rockwell's trespass during this period. (Add more lines if necessary.)

Beginning of Period	End of Period	Percentage Diminution in Value

PLEASE GO TO ¶ F (actual damages for nuisance).

¶ F Actual Damages for Nuisance

IF YOU DID NOT ANSWER "YES," TO ALL OF THE QUESTIONS IN ¶ C (NUISANCE BY DOW) OR ¶ D (NUISANCE BY ROCKWELL), PLEASE SKIP TO ¶ G (PUNITIVE DAMAGES).

IF YOU ANSWERED "YES," TO ALL OF THE QUESTIONS IN ¶ C (NUISANCE BY DOW), BUT DID NOT ANSWER "YES," TO ALL OF THE QUESTIONS IN ¶ D (NUISANCE BY ROCKWELL), GO TO QUESTION NO. 1 IN THIS PARAGRAPH.

IF YOU ANSWERED "YES," TO ALL OF THE QUESTIONS IN ¶ D (NUISANCE BY ROCKWELL), BUT DID NOT ANSWER "YES," TO ALL OF THE QUESTIONS IN ¶ C (NUISANCE BY DOW), SKIP TO QUESTION NO. 6 IN THIS PARAGRAPH.

IF YOU ANSWERED "YES," TO ALL OF THE QUESTIONS IN ¶ C (NUISANCE BY DOW) AND IN ¶ D (NUISANCE BY ROCKWELL), SKIP TO QUESTION NO. 11 IN THIS PARAGRAPH.

With regard to actual damages resulting from nuisance, (*Instruction Nos. 3.20 through 3.25)*, we find as follows:

Nuisance Verdict Against Dow Only

1. Do you find the injurious situation resulting from the nuisance by Dow became "complete" and "comparatively enduring" some time between January 1, 1988 and December 31, 1995 *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO ¶ G (punitive damages).

2. As of the time you find the injurious situation became "complete" and "comparatively enduring," do you find the actual value of the Class Properties was less than the value these Properties would have had but for the nuisance committed by Dow *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No, and so we award nominal damages of $1 per class member on this claim.

IF YOUR ANSWER TO QUESTION NO. 2 IS "YES," THEN GO TO QUESTION NO. 3. IF YOUR ANSWER TO QUESTION NO. 2 IS "NO," THEN SKIP TO ¶ G (punitive damages).

3. As of the time you find the injurious situation became "complete" and "comparatively enduring," what is the amount of the difference between the actual value of Class Properties and what their value would have been but for the nuisance by Dow? For each of the three types of property below, please state your answer as follows *(see Instruction No. 3.23)*:

(a) in the first column, state the average percentage by which Class Properties were diminished or depressed in value, relative to what their value would have been, without the trespass; and

(b) in the second column, the corresponding total dollar amount by which Class Properties, as a whole, were diminished or depressed in value, relative to what their value would have been, without the trespass.

For purposes of this answer, you should not consider Dow's affirmative defense of setoff or any "prior market discount" at which Class Members may have purchased their properties.

	Percentage Undervaluation	Aggregate Damages (Entire Class)
RESIDENTIAL	_____%	$_____
VACANT LAND	_____%	$_____
COMMERCIAL	_____%	$_____

TOTAL: $_____

PLEASE GO TO QUESTION NO. 4.

With regard to Dow's affirmative defense of setoff *(see Instruction No. 3.25)*, we find as follows:

4. Do you find that Dow proved that its nuisance caused a diminution in the value of Class Properties in one or more specific time periods before June 7, 1989?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 4 IS "YES," THEN GO TO QUESTION NO. 5. IF YOUR ANSWER TO QUESTION NO. 4 IS "NO," THEN SKIP TO ¶ G (punitive damages).

5. For each time period in which you found there was a pre-existing diminution in Class Property values, state when the period began, when it ended and the

average percentage by which Class Property values were diminished by Dow's nuisance during this period. (Add more lines if necessary.)

Beginning of Period	End of Period	Percentage Diminution in Value
_____	_____	_____
_____	_____	_____
_____	_____	_____

PLEASE GO TO ¶ G (punitive damages).

Nuisance Verdict Against Rockwell Only

6. Do you find the injurious situation resulting from the nuisance by Rockwell became "complete" and "comparatively enduring" some time between January 1, 1988 and December 31, 1995 *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 6 IS "YES," THEN GO TO QUESTION NO. 7. IF YOUR ANSWER TO QUESTION NO. 6 IS "NO," THEN SKIP TO ¶ G (punitive damages).

7. As of the time you find the injurious situation became "complete" and "comparatively enduring," do you find the actual value of the Class Properties was less than the value these Properties would have had but for the nuisance committed by Rockwell *(see Instruction No. 3.22)*?

ANSWER: _____ Yes _____ No, and so we award nominal damages of $1 per class member on this claim.

IF YOUR ANSWER TO QUESTION NO. 7 IS "YES," THEN GO TO QUESTION NO. 8. IF YOUR ANSWER TO QUESTION NO. 7 IS "NO," THEN SKIP TO ¶ G (punitive damages).

8. As of the time you find the injurious situation became "complete" and "comparatively enduring," what is the amount of the difference between the actual value of Class Properties and what their value would have been but for the nuisance by Rockwell? For each of the three types of property below, please state your answer as follows *(see Instruction No. 3.23)*:

(a) in the first column, state the average percentage by which Class Properties were diminished or depressed in value, relative to what their value would have been, without the trespass; and

(b) in the second column, the corresponding total dollar amount by which Class Properties, as a whole, were diminished or depressed in value, relative to what their value would have been, without the trespass.

For purposes of this answer, you should not consider defendants' affirmative defense of setoff or any "prior market discount" at which Class Members may have purchased their properties.

	Percentage Undervaluation	Aggregate Damages (Entire Class)
RESIDENTIAL	_____ %	$_____
VACANT LAND	_____ %	$_____
COMMERCIAL	_____ %	$_____

TOTAL: $_____

PLEASE GO TO QUESTION NO. 9.

With regard to Rockwell's affirmative defense of setoff *(see Instruction No. 3.25)*, we find as follows:

9. Do you find that Rockwell proved that its nuisance caused a diminution in the value of Class Properties in one or more specific time periods before June 7, 1989?

ANSWER: _____ Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 9 IS "YES," THEN GO TO QUESTION NO. 10. IF YOUR ANSWER TO QUESTION NO. 4 IS "NO," THEN SKIP TO ¶ G (punitive damages).

10. For each time period in which you found there was a pre-existing diminution in Class Property values, state when the period began, when it ended and the average percentage by which Class Property values were diminished by Rockwell's nuisance during this period. (Add more lines if necessary.)

Beginning of Period	End of Period	Percentage Diminution in Value
_____	_____	_____
_____	_____	_____
_____	_____	_____

PLEASE GO TO ¶ G (punitive damages).

Nuisance Verdicts Against Both Dow and Rockwell

11. Do you find the injurious situation resulting from the nuisance by Dow and Rockwell became "complete" and "comparatively enduring" some time between January 1, 1988 and December 31, 1995 *(see Instruction No. 3.22)*?

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 11 IS "YES," THEN GO TO QUESTION NO. 12. IF YOUR ANSWER TO QUESTION NO. 11 IS "NO," THEN SKIP TO ¶ G (punitive damages).

12. As of the time you find the injurious situation became "complete" and "comparatively enduring," do you find the actual value of the Class Properties was less than the value these Properties would have had but for the nuisance committed by Dow and Rockwell *(see Instruction No. 3.22)*?

ANSWER: X Yes _____ No, and so we award nominal damages of $1 per class member on this claim.

IF YOUR ANSWER TO QUESTION NO. 12 IS "YES," THEN GO TO QUESTION NO. 13. IF YOUR ANSWER TO QUESTION NO. 12 IS "NO," THEN SKIP TO ¶ G (punitive damages).

13. As of the time you find the injurious situation became "complete" and "comparatively enduring," what is the amount of the difference between the actual value of Class Properties and what their value would have been but for the nuisance by Dow and Rockwell? For each of the three types of property below, please state your answer as follows *(see Instruction No. 3.23)*:

(a) in the first column, state the average percentage by which Class Properties were diminished or depressed in value, relative to what their value would have been, without the nuisance; and

(b) in the second column, the corresponding total dollar amount by which Class Properties, as a whole, were diminished or depressed in value, relative to what their value would have been, without the nuisance.

For purposes of this answer, you should not consider Defendants' affirmative defense of setoff or any "prior market discount" at which Class Members may have purchased their properties. Adjusted to 2005 CPI

	Percentage Undervaluation	Aggregate Damages (Entire Class)
RESIDENTIAL	7 %	$ 144,199,088.00
VACANT LAND	30 %	$ 27,000,000.00
COMMERCIAL	53.03 %	$ 5,651,252.00
		TOTAL: $ 176,850,340.00

PLEASE GO TO QUESTION NO. 14.

14. Taking as 100 percent the combined nuisance that caused the damages you have found, what percentage, if any, was caused by the nuisance by Dow and the nuisance by Rockwell *(see Instruction No. 3.19A)*:

ANSWER: Percentage, if any, charged to Dow: 30 %

Percentage, if any, charged to Rockwell 70 %

MUST TOTAL: 100%

PLEASE GO TO QUESTION NO. 15

With regard to Dow and Rockwell's affirmative defense of setoff *(see Instruction No. 3.25)*, we find as follows:

15. Do you find that Dow and Rockwell proved that their nuisance caused a diminution in the value of Class Properties in one or more specific time periods before June 7, 1989?

ANSWER: _____ Yes X No

IF YOUR ANSWER TO QUESTION NO. 15 IS "YES," THEN GO TO QUESTION NO. 16. IF YOUR ANSWER TO QUESTION NO. 15 IS "NO," THEN SKIP TO ¶ G (punitive damages).

16. For each time period in which you found there was a pre-existing diminution in Class Property values, state when the period began, when it ended and the average percentage by which Class Property values were diminished by Dow and Rockwell's nuisance during this period. (Add more lines if necessary.)

Beginning of Period	End of Period	Percentage Diminution in Value

PLEASE GO TO ¶ G (punitive damages ¶).

¶ G **Punitive Damages**

Punitive Damages Against Dow

ANSWER THIS SECTION ONLY IF YOU AWARDED ACTUAL DAMAGES AGAINST DOW IN ¶ E (ACTUAL DAMAGES FOR TRESPASS) AND/OR ¶ F (ACTUAL DAMAGES FOR NUISANCE). IF YOU DID NOT AWARD ACTUAL DAMAGES AGAINST DOW, SKIP TO NEXT SECTION IN THIS PARAGRAPH, "PUNITIVE DAMAGES AGAINST ROCKWELL."

With regard to punitive damages against Dow, we find as follows:

1. Do you find beyond a reasonable doubt that Dow's conduct in committing the trespass and/or nuisance was "willful and wanton" as defined in Instruction No. 3.27? In deciding this question, you may only consider Dow's conduct up to August 20, 1988, including conduct that resulted in harm on or after this date.

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 1 IS "YES," THEN GO TO QUESTION NO. 2. IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," THEN SKIP TO NEXT SECTION IN THIS PARAGRAPH, "PUNITIVE DAMAGES AGAINST ROCKWELL."

2. What amount of punitive damages do you find should be awarded against Dow? This amount may not exceed the total amount of actual damages you found against Dow in ¶ E and ¶ F.

ANSWER: $ 110,800,000.00

PLEASE GO TO NEXT SECTION IN THIS PARAGRAPH, "PUNITIVE DAMAGES AGAINST ROCKWELL."

Punitive Damages Against Rockwell

ANSWER THIS SECTION ONLY IF YOU AWARDED ACTUAL DAMAGES AGAINST ROCKWELL IN ¶ E (ACTUAL DAMAGES FOR TRESPASS) AND/OR ¶ F (ACTUAL DAMAGES FOR NUISANCE). IF YOU DID NOT AWARD ACTUAL DAMAGES AGAINST ROCKWELL, SKIP TO ¶ H (ADDITIONAL QUESTIONS).

With regard to punitive damages against Rockwell, we find as follows:

3. Do you find beyond a reasonable doubt that Rockwell's conduct in committing the trespass and/or nuisance was "willful and wanton" as defined in Instruction No. 3.27? In deciding this question, you may only consider Rockwell's conduct up to August 20, 1988, including conduct that resulted in harm on or after this date.

ANSWER: X Yes _____ No

IF YOUR ANSWER TO QUESTION NO. 3 IS "YES," THEN GO TO QUESTION NO. 4. IF YOUR ANSWER TO QUESTION NO. 3 IS "NO," THEN SKIP TO ¶ H.

4. What amount of punitive damages do you find should be awarded against Rockwell? This amount may not exceed the total amount of actual damages you found against Rockwell in ¶ E and ¶ F.

ANSWER: $ 89,400,000.00

PLEASE GO TO ¶ H.

¶ H Additional Questions

1. Do you find it appeared on or before January 30, 1990, which is the date this case was filed, that any trespass or nuisance by Dow would continue indefinitely *(see Instruction No. 3.28)*?

_X_ YES as to any trespass or nuisance by Dow

_____ NO as to any trespass or nuisance by Dow

_____ NOT APPLICABLE because we did not find any trespass or nuisance by Dow

IF YOUR ANSWER TO QUESTION NO. 1 IS "NO," GO TO QUESTION NO. 2. IF YOUR ANSWER IS "YES" OR "NOT APPLICABLE," SKIP TO QUESTION NO. 3.

2. When do you find it became apparent that the trespass or nuisance by Dow would continue indefinitely? If you found against Dow on both claims, please state the date for each claim separately.

_____

PLEASE GO TO QUESTION NO. 3.

3. Do you find it appeared on or before January 30, 1990, which is the date this case was filed, that any trespass or nuisance by Rockwell would continue indefinitely *(see Instruction No. 3.28)*?

__X__ YES as to any trespass or nuisance by Rockwell

_____ NO as to any trespass or nuisance by Rockwell

_____ NOT APPLICABLE because we did not find any trespass or nuisance by Rockwell

IF YOUR ANSWER TO QUESTION NO. 3 IS "NO," GO TO QUESTION NO. 4. IF YOUR ANSWER IS "YES" OR "NOT APPLICABLE," SKIP TO QUESTION NO. 5.

4. When do you find it became apparent that the trespass or nuisance by Rockwell would continue indefinitely? If you found against Rockwell on both claims, please state the date for each claim separately.

_____

PLEASE GO TO QUESTION NO. 5.

5. Do you find that any intentional or negligent conduct by Dow or Rockwell or both of them at Rocky Flats, and/or actual or threatened harms caused by such conduct, created a situation that is capable of causing fear, anxiety, or mental discomfort in individual Class Members *(see Instruction No. 3.28)*?

	DOW	ROCKWELL
YES	X	X
NO	____	____

PLEASE SIGN AND DATE THIS VERDICT FORM.

Dated ~~this~~ 13 day of February, 2006.

JUROR NAMES REDACTED

Rocky Flats Property Class Area

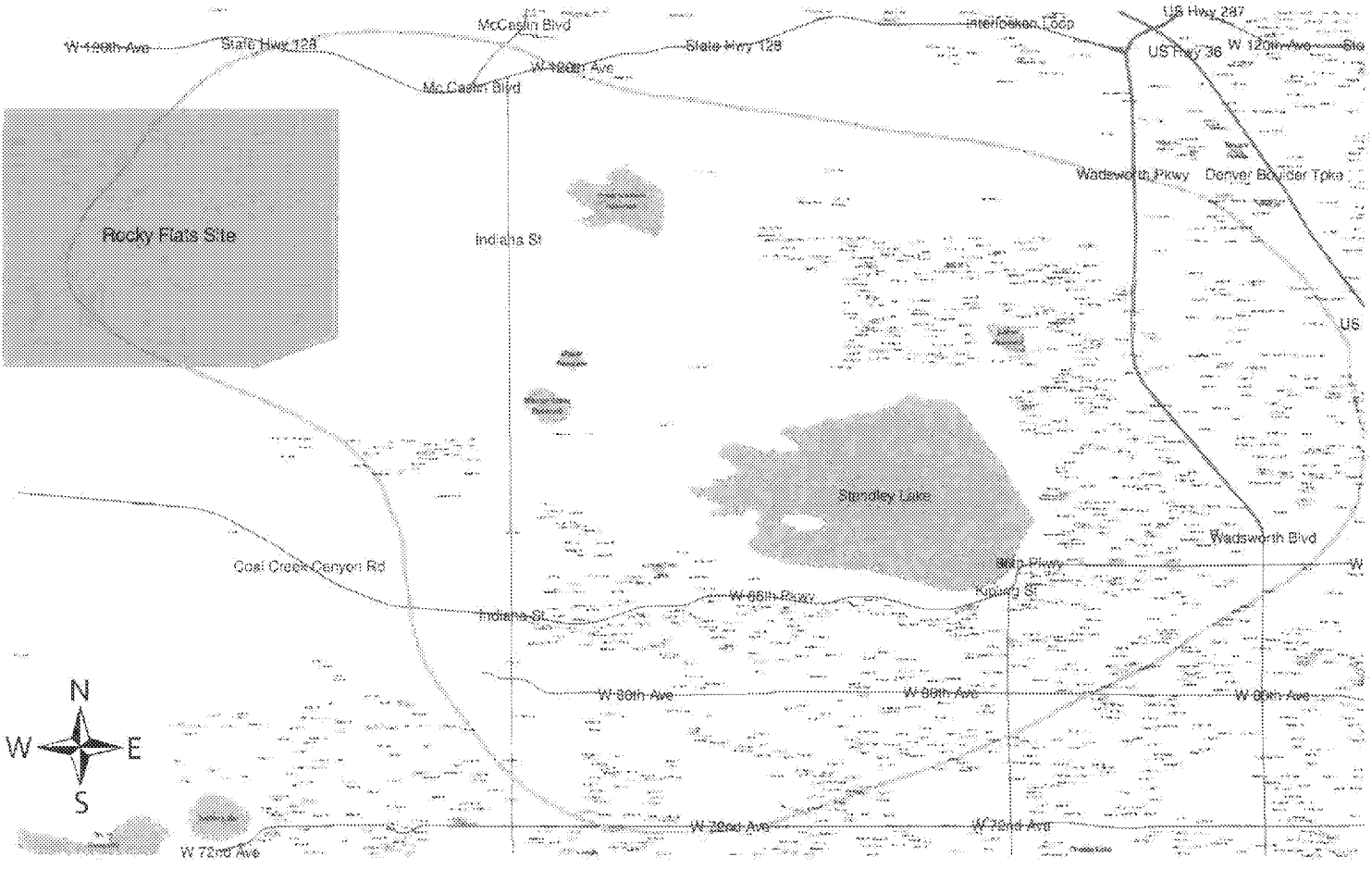

Exhibit B